

Abstract of the Disclosure

08/503,606

Recombinant enzyme libraries and kits where a plurality of enzymes are each characterized by different physical and/or chemical characteristics and classified by common characteristics. The characteristics are determined by screening of recombinant enzymes expressed by a DNA library produced from various microorganisms.

**Table 1**

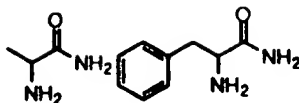
**A2**

Fluorescein conjugated casein (3.2 mol fluorescein/mol casein)

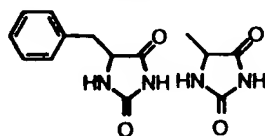
CBZ-Ala-AMC  
t-BOC-Ala-Ala-Asp-AMC  
succinyl-Ala-Gly-Leu-AMC  
CBZ-Arg-AMC  
CBZ-Met-AMC  
morphourea-Phe-AMC

t-BOC = t-butoxy carbonyl, CBZ = carbonyl benzyloxy,  
AMC = 7-amino-4-methyl coumarin

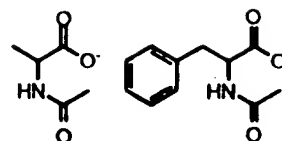
**AA3**



**AB3**



**AC3**



**AD3**

Fluorescein conjugated casein

t-BOC-Ala-Ala-Asp-AFC  
CBZ-Ala-Ala-Lys-AFC  
succinyl-Ala-Ala-Phe-AFC  
succinyl-Ala-Gly-Leu-AFC

AFC = 7-amino-4-trifluoromethyl coumarin.)

**AE3**

Fluorescein conjugated  
casein

**AF3**

t-BOC-Ala-Ala-Asp-AFC  
CBZ-Asp-AFC

**AG3**

CBZ-Ala-Ala-Lys-AFC  
CBZ-Arg-AFC

**AH3**

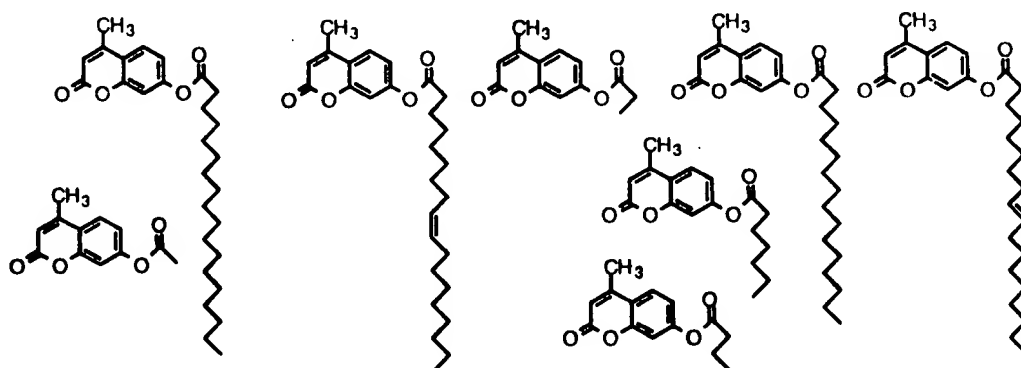
succinyl-Ala-Ala-Phe-AFC  
CBZ-Phe-AFC  
CBZ-Trp-AFC

**AI3**

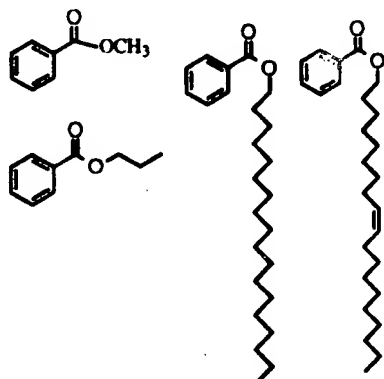
succinyl-Ala-Gly-Leu-AFC  
CBZ-Ala-AFC  
CBZ-Sewr-AFC

Table 2

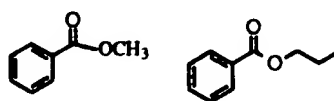
L2



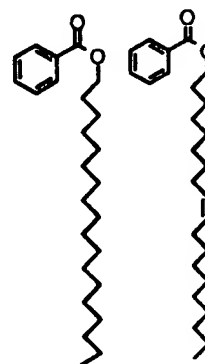
LA3



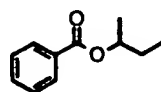
LB3



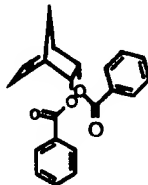
LC3



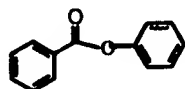
LD3



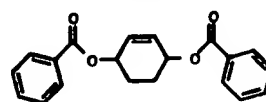
LF3



LE3



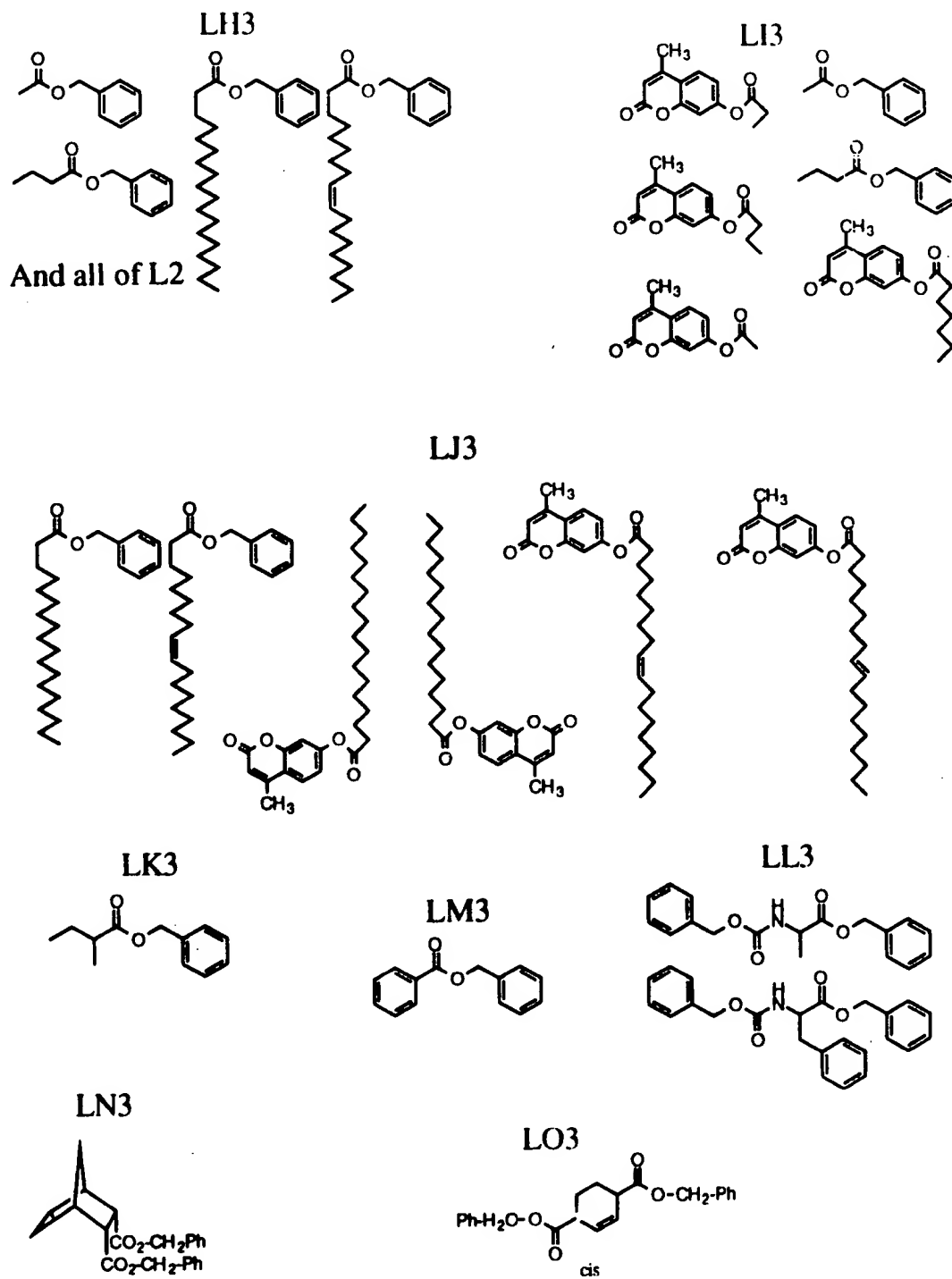
LG3



And all of L2

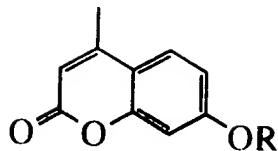
cis

Table 3



136A

**Table 4**



4-methyl umbelliferone

wherein R =

G2	$\beta$ -D-galactose $\beta$ -D-glucose $\beta$ -D-glucuronide
GB3	$\beta$ -D-cellobioside $\beta$ -B-cellobiopyranoside
GC3	$\beta$ -D-galactose $\alpha$ -D-galactose
GD3	$\beta$ -D-glucose $\alpha$ -D-glucose
GE3	$\beta$ -D-glucuronide
GI3	$\beta$ -D-N,N-diacetylchitobiose
GJ3	$\beta$ -D-fucose $\alpha$ -L-fucose $\beta$ -L-fucose
GK3	$\beta$ -D-mannose $\alpha$ -D-mannose

non-Umbelliferyl substrates

GA3	amylose [polyglucan $\alpha$ 1,4 linkages], amylopectin [polyglucan branching $\alpha$ 1,6 linkages]
GF3	xylan [poly 1,4-D-xylan]
GG3	amylopectin, pullulan
GH3	sucrose, fructofuranoside